

In the claims

Concerning the status of the claims ever presented for review in the instant application:

Cancel original independent claims 1-2 and 15-17 respectively, without prejudice;

Amend original claims 3-4, 6-12, 14, and 19-27 respectively as recited hereinafter; and

Retain dependent claims 5 and 13 respectively as originally worded.

In addition, in view of the explicit holdings of law rendered by the U.S. Supreme Court in the *Festo* case [*Festo Corp. v. Shoketsu kinzoku Kabushiki Co. Ltd. et al.*, 62 USPQ2d 1705 (2002)] concerning the applicability of the legal doctrine of equivalents to amended claim language, applicants now present a formal attestation and affirmation of the legal position and substantive rights: Applicants do not now surrender for any reason, nor have previously surrendered at any time or for any reason during the prosecution of the instant application, any inventive subject matter which is or could be expected to be a particular equivalent of the invention defined by the language of the amended claims then pending as understood by a person of ordinary skill in this art; and that no presumption of estoppel, either in law or equity, exists or pertains now or at any time previously as a potential bar

to the full application of the doctrine of equivalence for any and all possible embodiments which may be found to be encompassed now or in the future by the language of the amended claims proffered now or at any time previously for substantive examination and review by the U.S. Patent Office. Accordingly, applicants hereby affirmatively rebut and explicitly dispute any presumption that the doctrine of equivalents for the language of the amended claims has been surrendered or is not in full force for any reason now and at any time during the prosecution on the merits of any and all claims defining the invention of the instant application.

Also, in accordance with the currently revised amendment practice (compulsory as of July 30th, 2003), applicants now present a listing of all the claims, in ascending numerical order, which were ever submitted for review; provide an identification of those cancelled or withdrawn claims which were ever submitted, and offer for review the full text of those claims currently pending in the instant application. The listing of all claims ever presented and the full text of the presently pending claims begins on the immediately following page.

Claim 1- 2 (Canceled).

Claim 3 (Currently Amended). A dosimetry assessment apparatus for determining the degree of exposure of a living subject to ionizing radiation, wherein said living subject has been previously exposed to an unknown but potentially harmful dose of ionizing radiation, said dosimetry assessment apparatus comprising:

a detection assembly able to target at least one chosen tooth in the mouth of a living subject and generate a test EPR spectrum from the targeted tooth, said assembly including

(i) a magnetic field generator of predetermined structure, dimensions and configuration and whose capacities and operating parameters are controlled to generate a stable and substantially uniform magnetic field strength of about 10 to 100 mT with a magnetic field uniformity of about 0.25% and a selected magnetic modulation field of about +/-0.1 to 0.5 mT with a magnetic field uniformity of about +/-10% over the region of interest,

(ii) a resonator construct of predetermined dimensions and configuration which is adapted for engagement with at least one chosen tooth in the mouth of the living subject and whose operation allows for the emission of a radiowave of appropriate frequency for EPR measurement which is applied on-demand through the substance of the chosen tooth, and

(iii) an electron paramagnetic resonance (EPR) spectrometer which is integrated with said magnetic field generator and whose operation generates a test EPR spectrum which can show the presence and absence of a net magnetic moment within said substantially uniform magnetic field occurring in response to a radiowave of appropriate frequency being applied to the chosen tooth in the mouth of the living subject;

electronic detection equipment able to detect the presence and absence of a net magnetic moment within a test EPR spectrum;

electronic operating controls coupled to said detection assembly;

a power supply integrated with said detection assembly; and

~~The dosimetry assessment apparatus as recited in claim 1 further comprising~~

a mathematical model library of predicted EPR spectra for teeth before and after exposure to known doses of ionizing radiation.

Claim 4 (Currently Amended). The dosimetry assessment apparatus as recited in claim 2 ~~or~~ 3 further comprising electronic comparison equipment for comparing a test EPR spectrum with said library of EPR spectra.

Claim 5 (Original). The dosimetry assessment apparatus as recited in claim 4 wherein said comparison of a test EPR spectrum with said library of EPR spectra is viewed as a readable output of ionizing radiation dose exposure.

Claim 6 (Currently Amended). The dosimetry assessment apparatus as recited in claim \pm 3 wherein said magnetic field generator is ergonomically configured.

Claim 7 (Currently Amended). The dosimetry assessment apparatus as recited in claim \pm 3 wherein the direction of said substantially uniform magnetic field is generated perpendicular to a surface of at least one chosen tooth in the mouth of the living subject.

Claim 8 (Currently Amended). The dosimetry assessment apparatus as recited in claim \pm 3 wherein at least a part of said resonance construct is curved in configuration for engagement with a chosen tooth.

Claim 9 (Currently Amended). The dosimetry assessment apparatus as recited in claim \pm 3 wherein at least a part of said resonance construct is oval in configuration for engagement with a chosen tooth.

Claim 10 (Currently Amended). The dosimetry assessment apparatus as recited in claim ~~1~~ 3 wherein said magnetic field generator is composed of at least one naturally occurring and intrinsically magnetic material.

Claim 11 (Currently Amended). The dosimetry assessment apparatus as recited in claim ~~1~~ 3 wherein said magnetic field generator is a manufactured electromagnetic structure.

Claim 12 (Currently Amended). The dosimetry assessment apparatus as recited in claim ~~1~~ 3 wherein said apparatus is transportable on-demand.

Claim 13 (Original). The dosimetry assessment apparatus as recited in claim 12 wherein said transportable apparatus weighs less than 100 kilograms.

Claim 14 (Currently Amended). The dosimetry assessment apparatus as recited in claim ~~1~~ 3 wherein said resonance construct can emit and apply a radiowave at a frequency ranging from about 0.3-3.0 GHz.

Claims 15 - 17 (Canceled).

Claim 18 (Original). A comparative dosimetry assessment method for determining the degree of exposure of a living subject to ionizing radiation, said comparative dosimetry assessment method comprising the steps of:

identifying at least one living subject who is suspected of having been previously exposed to an unknown but potentially harmful dose of ionizing radiation;

obtaining a dosimetry apparatus for measuring exposure to ionizing radiation in a living subject, said apparatus being suitable for the targeting of at least one chosen tooth in the mouth of a living subject and comprising

(i) a magnetic field generator of predetermined structure, dimensions and configuration and whose capacities and operating parameters are controlled to generate a stable and substantially uniform magnetic field strength of about 10 to 100 mT with a magnetic field uniformity of about 0.25% and a selected magnetic modulation field of about ± 0.1 to 0.5 mT with a magnetic field uniformity of about $\pm 10\%$ over the region of interest,

(ii) a resonator construct of predetermined dimensions and configuration which is adapted for engagement with at least one chosen tooth in the mouth of the living subject, whose operation allows for the emission of a radiowave of appropriate frequency for EPR measurement which is applied on-demand through the substance of the chosen tooth,

(iii) an electron paramagnetic resonance (EPR) spectrometer which is

integrated with said magnetic field generator and whose operation generates a test EPR spectrum which can show the presence and absence of a net magnetic moment within said substantially uniform magnetic field occurring in response to a radiowave of appropriate frequency being applied to the chosen tooth in the mouth of the living subject,

(iv) electronic operating controls,

(v) an integrated power supply,

(vi) a mathematical model library comprising predicted EPR spectra of teeth before and after exposure to known doses of ionizing radiation, and

(vii) comparison equipment for comparing a test EPR spectrum with said mathematical model library of predicted EPR spectra;

targeting said dosimetry apparatus to at least one chosen tooth within the mouth of a living subject;

operating said dosimetry apparatus to obtain a test EPR spectrum from the targeted tooth within the mouth of a living subject; and

comparing said test EPR spectrum with said mathematical model library of predicted EPR spectra to detect the presence or absence of a net magnetic moment within said test EPR spectrum, wherein said comparison of EPR spectra provides a measure of the subject's previous exposure to ionizing radiation.

Claim 19 (Currently Amended). The dosimetry assessment method as recited in claim ~~17 or~~ 18 wherein said comparison of a test EPR spectrum with said library of EPR spectra results in a readable output of the exposure to known doses of ionizing radiation.

Claim 20 (Currently Amended). The dosimetry assessment method as recited in claim ~~16, 17 or~~ 18 wherein said magnetic field generator is ergonomically configured.

Claim 21 (Currently Amended). The dosimetry assessment method as recited in claim ~~16, 17 or~~ 18 wherein the direction of said substantially uniform magnetic field is generated perpendicular to a surface of at least one chosen tooth in the mouth of the living subject.

Claim 22 (Currently Amended). The dosimetry assessment method as recited in claim ~~16, 17 or~~ 18 wherein at least a part of said resonance construct is curved in configuration for engagement with a chosen tooth.

Claim 23 (Currently Amended). The dosimetry assessment method as recited in claim ~~16, 17 or~~ 18 wherein at least a part of said resonance construct is oval in configuration for engagement with a chosen tooth.

Claim 24 (Currently Amended). The dosimetry assessment method as recited in claim ~~16, 17 or~~ 18 wherein said magnetic field generator is composed of at least one naturally occurring and intrinsically magnetic material.

Claim 25 (Currently Amended). The dosimetry assessment method as recited in claim ~~16, 17 or~~ 18 wherein said magnetic field generator is a manufactured electromagnetic structure.

Claim 26 (Currently Amended). The dosimetry assessment method as recited in claim ~~16, 17 or~~ 18 wherein said apparatus is transportable on-demand.

Claim 27 (Currently Amended). The dosimetry assessment method as recited in claim ~~16, 17 or~~ 18 wherein said resonance construct can emit and apply a radiowave at a frequency ranging from about 0.3-3.0 GHz.